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Southern Nuclear Operating Company  
Vogtle Electric Generating Plant Unit 4  
ITAAC Closure Notification on Completion of ITAAC Item 2.1.03.06.i [Index Number 75]

Ladies and Gentlemen:

In accordance with 10 CFR 52.99(c)(1), the purpose of this letter is to notify the Nuclear Regulatory Commission (NRC) of the completion of Vogtle Electric Generating Plant (VEGP) Unit 4 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) Item 2.1.03.06.i [Index Number 75] to demonstrate that the Reactor System (RXS) equipment identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.1.3-1 is designed and constructed in accordance with applicable requirements.

The closure process for this ITAAC is based on the guidance described in Nuclear Energy Institute (NEI) 08-01, "Industry Guideline for the ITAAC Closure Process Under 10 CFR Part 52," which was endorsed by the NRC in Regulatory Guide 1.215.

This letter contains no new NRC regulatory commitments. Southern Nuclear Operating Company (SNC) requests NRC staff confirmation of this determination and publication of the required notice in the Federal Register per 10 CFR 52.99.

If there are any questions, please contact Kelli Roberts at 706-848-6991.

Respectfully submitted,

A handwritten signature in black ink that reads "Jamie Coleman".

Jamie M. Coleman  
Regulatory Affairs Director Vogtle 3 & 4

Enclosure: Vogtle Electric Generating Plant (VEGP) Unit 4  
Completion of ITAAC 2.1.03.06.i [Index Number 75]

JMC/JRB/sfr

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cc:      Regional Administrator, Region II  
         Director, Office of Nuclear Reactor Regulation (NRR)  
         Director, Vogtle Project Office NRR  
         Senior Resident Inspector – Vogtle 3 & 4

**Southern Nuclear Operating Company  
ND-22-0980  
Enclosure**

**Vogtle Electric Generating Plant (VEGP) Unit 4  
Completion of ITAAC 2.1.03.06.i [Index Number 75]**

### **ITAAC Statement**

#### **Design Commitment:**

6. The seismic Category I equipment identified in Table 2.1.3-1 can withstand seismic design basis loads without loss of safety function.

9.a) The Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

#### **Inspections, Tests, Analyses:**

i) Inspection will be performed to verify that the seismic Category I equipment identified in Table 2.1.3-1 (except fuel assemblies, rod cluster control assemblies, gray rod cluster assemblies, and incore instrument QuickLoc assemblies) is located on the Nuclear Island.

ii) Type tests, analyses, or a combination of type tests and analyses of seismic Category I equipment will be performed.

iii) Inspection will be performed for the existence of a report verifying that the equipment including anchorage is seismically bounded by the tested or analyzed conditions. This inspection must be performed on the as-built equipment except for the fuel assemblies, rod cluster control assemblies, gray rod cluster assemblies, and incore instrument QuickLoc assemblies.

i) Type tests, analysis, or a combination of type tests and analysis will be performed on Class 1E equipment located in a harsh environment.

ii) Inspection will be performed of the as-built Class 1E equipment and the associated wiring, cables, and terminations located in a harsh environment.

#### **Acceptance Criteria:**

i) The seismic Category I equipment identified in Table 2.1.3-1 (except fuel assemblies, rod cluster control assemblies, gray rod cluster assemblies, and incore instrument QuickLoc assemblies) is located on the Nuclear Island.

ii) A report exists and concludes that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function.

iii) A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions.

i) A report exists and concludes that the Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

### **ITAAC Determination Basis**

This ITAAC requires that inspections, tests, and analyses be performed and documented to ensure the Reactor System (RXS) components identified as seismic Category I or Class 1E in the Combined License (COL) Appendix C, Table 2.1.3-1 (the Table) are designed and constructed in accordance with applicable requirements.

i) The seismic Category I equipment identified in Table 2.1.3-1 (except fuel assemblies, rod cluster control assemblies, gray rod cluster assemblies, and incore instrument QuickLoc assemblies) is located on the Nuclear Island.

To assure that seismic Category I components can withstand seismic design basis loads without loss of safety function, all the components in the Table are designed to be located on the seismic Category I Nuclear Island. In accordance with Equipment Qualification (EQ) Walkdown ITAAC Guideline and EQ ITAAC As-built Installation Documentation Guideline (References 1 & 2), an inspection was conducted of the RXS to confirm the satisfactory installation of the seismically qualified components. The inspection includes verification of equipment make/model/serial number and verification of equipment location (Building, Elevation, Room). Fuel assemblies, rod cluster control assemblies, gray rod cluster assemblies, and incore instrument QuickLoc assemblies are not installed in their final location until after the 10 CFR 52.103(g) finding has been made as part of initial fuel load. Per item ii below, the assemblies are seismically qualified when located on the nuclear island. Inspections of these assemblies are performed but not in the final installed location, since that is not allowed by 52.103(g). The EQ As-Built Reconciliation Reports (EQRR) (Reference 3) identified in Attachment A document the results of the inspection and conclude that the seismic Category I components are located on the Nuclear Island except for the fuel assemblies, rod cluster control assemblies, gray rod cluster assemblies, and incore instrument QuickLoc assemblies.

ii) A report exists and concludes that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function.

Seismic Category I components in the Table require type tests and/or analyses to demonstrate structural integrity and operability. Structural integrity of the passive seismic Category I mechanical equipment is demonstrated by analysis in accordance with American Society of Mechanical Engineers (ASME) Code Section III (Reference 4).

Safety-related (Class 1E) electrical equipment in the Table is seismically qualified by type testing combined with analysis in accordance with Institute of Electrical and Electronics Engineers (IEEE) Standard 344-1987 (Reference 5). The specific qualification method (i.e., type testing, analysis, or combination) used for each component in the Table is identified in Attachment A. Additional information about the methods used to qualify AP1000 safety-related equipment is provided in the Updated Final Safety Analysis Report (UFSAR) Appendix 3D (Reference 6). The EQ Reports (Reference 7) identified in Attachment A contain applicable test reports and associated documentation and conclude that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function.

iii) A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions.

To the extent that the installation prior to fuel load is possible, an inspection (References 1 & 2) was conducted to confirm the satisfactory installation of the seismically qualified components in the Table. The inspection verifies the equipment make/model/serial number, as-designed equipment mounting orientation, anchorage and clearances, and electrical and other interfaces. For components not installed prior to fuel load, the inspection is accomplished by verifying a quality assurance data package (Reference 8 (i.e. fuel assemblies, rod cluster control assemblies, gray rod cluster assemblies, and incore instrument QuickLoc assemblies)) exists that concludes that the equipment was constructed as per design.

The inspection conducted for each component in the table will consider the critical seismic attributes identified in the associated EQ Report for that component. The inspection will confirm that the equipment, including anchorage, is seismically bounded by the tested or analyzed conditions.

Attachment A identifies the EQRR (Reference 3) completed to verify that the seismic Category I equipment listed in the Table, including anchorage, are seismically bounded by the tested or analyzed conditions, IEEE Standard 344-1987 (Reference 5) and NRC Regulatory Guide (RG) 1.100 (Reference 9).

i) A report exists and concludes that the Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

The harsh environment Class 1E components in the Table are qualified by type testing and/or analyses. Class 1E electrical component type testing is performed in accordance with IEEE Standard 323-1974 (Reference 10) and RG 1.89 (Reference 11) to meet the requirements of 10 CFR 50.49. Type testing of safety-related equipment meets the requirements of 10 CFR Part 50, Appendix A, General Design Criterion 4. Attachment A identifies the EQ program and specific qualification method for each safety-related mechanical or Class 1E electrical component located in a harsh environment. Additional information about the methods used to qualify AP1000 safety-related equipment is provided in the UFSAR Appendix 3D (Reference 6). EQ Reports (Reference 7) identified in Attachment A contain applicable test reports and associated documentation and conclude that the equipment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function.

ii) A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

An inspection is conducted to confirm the satisfactory installation of the harsh qualified as-built components in the Table. The inspection verifies the equipment location, make/model/serial number, as-designed equipment mounting, wiring, cables, and terminations and confirms that the environmental conditions for the zone in which the component is mounted are bounded by the tested and/or analyzed conditions.

The EQRRs (Reference 3) identified in Attachment A document this inspection and conclude that the harsh environment Class 1E equipment and the associated wiring, cables, and terminations are bounded by the qualified configuration and IEEE Standard 323-1974 (Reference 10).

Together, these reports (References 3, 7, and 8) provide evidence that the ITAAC Acceptance Criteria requirements are met:

- The seismic Category I equipment identified in Table 2.1.3-1 (except fuel assemblies, rod cluster control assemblies, gray rod cluster assemblies, and incore instrument QuickLoc assemblies) is located on the Nuclear Island;
- A report exists and concludes that the seismic Category I equipment can withstand seismic design basis loads without loss of safety function;
- A report exists and concludes that the equipment including anchorage is seismically bounded by the tested or analyzed conditions;
- A report exists and concludes that the Class 1E equipment identified in Table 2.1.3-1 as being qualified for a harsh environment can withstand the environmental conditions that would exist before, during, and following a design basis accident without loss of safety function for the time required to perform the safety function; and
- A report exists and concludes that the as-built Class 1E equipment and the associated wiring, cables, and terminations identified in Table 2.1.3-1 as being qualified for a harsh environment are bounded by type tests, analyses, or a combination of type tests and analyses.

References 3, 7, and 8 are available for NRC inspection as part of the Unit 4 ITAAC 2.1.03.06.i Completion Package (Reference 12).

### **ITAAC Finding Review**

In accordance with plant procedures for ITAAC completion, Southern Nuclear Operating Company (SNC) performed a review of all ITAAC findings pertaining to the subject ITAAC and associated corrective actions. This finding review, which included now-consolidated ITAAC Indexes 76, 77, 81, and 82, found no relevant ITAAC findings associated with this ITAAC.

### **ITAAC Completion Statement**

Based on the above information, SNC hereby notifies the NRC that ITAAC 2.1.03.06.i was performed for VEGP Unit 4 and that the prescribed acceptance criteria are met.

Systems, structures, and components verified as part of this ITAAC are being maintained in their as-designed, ITAAC compliant condition in accordance with the approved plant programs and procedures.

**References (available for NRC inspection)**

1. ND-RA-001-014, "EQ ITAAC As-Built Walkdown Guideline", Version 3.1
2. ND-RA-001-016, "EQ ITAAC As-built Installation Documentation Guideline", Version 1.0
3. EQ Reconciliation Reports as identified in Attachment A for Unit 4
4. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section III, "Rules for Construction of Nuclear Power Plant Components," 1998 Edition with 2000 Addenda
5. IEEE Standard 344-1987, "IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Power Generating Stations"
6. Vogtle 3&4 Updated Final Safety Analysis Report Appendix 3D, "Methodology for Qualifying AP1000 Safety-Related Electrical and Mechanical Equipment"
7. Equipment Qualification Reports as identified in Attachment A
8. SV4-RXS-ITR-800075, "Unit 4 Reactor System (RXS) Seismic Category I Equipment Qualification – As-Built Summary for Fuel Assemblies, Control Rods, and Gray Rods"
9. Regulatory Guide 1.100, Rev. 2, "Seismic Qualification of Electric and Mechanical Equipment for Nuclear Power Plants"
10. IEEE Standard 323-1974, "IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations"
11. Regulatory Guide 1.89, Rev 1, "Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants"
12. 2.1.03.06.i-U4-CP-Rev0, ITAAC Completion Package



**Attachment A**

System: Reactor System (RXS)

<b>Equipment Name<sup>+</sup></b>	<b>Tag No.<sup>+</sup></b>	<b>Seismic Cat. I <sup>+</sup></b>	<b>Class 1E/ Qual. For Harsh Envir.<sup>+ 3</sup></b>	<b>Envir. Zone <sup>1</sup></b>	<b>Envir Qual Program <sup>2</sup></b>	<b>Type of Qual.</b>	<b>EQ Reports</b>	<b>EQRR</b>
RV (Reactor Vessel)	RXS-MV-01	Yes	-	N/A	N/A	Analysis	SV4-MV01- Z0R-101	2.1.03.06.i-U4- EQRR-PCD001
Reactor Upper Internals Assembly	RXS-MI-01	Yes	-	N/A	N/A	Analysis	SV4-MI01- S3R-002	2.1.03.06.i-U4- EQRR-PCD001
Reactor Lower Internals Assembly	RXS-MI-02	Yes	-	N/A	N/A	Analysis	SV4-MI01- S3R-002	2.1.03.06.i-U4- EQRR-PCD001

Equipment Name <sup>+</sup>	Tag No. <sup>+</sup>	Seismic Cat. I <sup>+</sup>	Class 1E/ Qual. For Harsh Envir. <sup>+ 3</sup>	Envir. Zone <sup>1</sup>	Envir Qual Program <sup>2</sup>	Type of Qual.	EQ Reports	EQRR
Fuel Assemblies (157 locations)	RXS-FA-A07/ A08/ A09/ B05/ B06/ B07/ B08/ B09/ B10/ B11/ C04/ C05/ C06/ C07/ C08/ C09/ C10/ C11/ C12/ D03/ D04/ D05/ D06/ D07/ D08/ D09/ D10/ D11/ D12/ D13/ E02/ E03/ E04/ E05/ E06/ E07/ E08/ E09/ E10/ E11/ E12/ E13/ E14/ F02/ F03/ F04/ F05/ F06/ F07/ F08/ F09/ F10/ F11/ F12/ F13/ F14/ G01/ G02/ G03/ G04/ G05/ G06/ G07/ G08/ G09/ G10/ G11/ G12/ G13/ G14/ G15/ H01/ H02/ H03/ H04/ H05/ H06/ H07/ H08/ H09/ H10/ H11/ H12/ H13/ H14/ H15/ J01/ J02/ J03/ J04/ J05/ J06/ J07/ J08/ J09/ J10/ J11/ J12/ J13/ J14/ J15/ K02/ K03/ K04/ K05/ K06/ K07/ K08/ K09/ K10/ K11/ K12/ K13/ K14/ L02/ L03/ L04/ L05/ L06/ L07/ L08/ L09/ L10/ L11/ L12/ L13/ L14/ M03/ M04/ M05/ M06/ M07/ M08/ M09/ M10/ M11/ M12/ M13/ N04/ N05/ N06/ N07/ N08/ N09/ N10/ N11/ N12/ P05/ P06/ P07/ P08/ P09/ P10/ P11/ R07/ R08/ R09	Yes	-	N/A	N/A	Analysis	CN-NRFE-10-21 CN-NRFE-13-1	2.1.03.06.i-U4-EQRR-PCD002
Rod Cluster Control Assemblies (RCCAs) (minimum 53 locations)	RXS-FR-B06/ B10/ C05/ C07/ C09/ C11/ D06/ D08/ D10/ E03/ E05/ E07/ E09/ E11/ E13/ F02/ F04/ F12/ F14/ G03/ G05/ G07/ G09/ G11/ G13/ H04/ H08/ H12/ J03/ J05/ J07/ J09/ J11/ J13/ K02/ K04/ K12/ K14/ L03/ L05/ L07/ L09/ L11/ L13/ M06/ M08/ M10/ N05/ N07/ N09/ N11/ P06/ P10	Yes	-	N/A	N/A	Analysis	NRFE-14-1	2.1.03.06.i-U4-EQRR-PCD002

Equipment Name <sup>+</sup>	Tag No. <sup>+</sup>	Seismic Cat. I <sup>+</sup>	Class 1E/ Qual. For Harsh Envir. <sup>+3</sup>	Envir. Zone <sup>1</sup>	Envir Qual Program <sup>2</sup>	Type of Qual.	EQ Reports	EQRR
Gray Rod Cluster Assemblies (GRCAs) (16 locations)	RXS-FG-B08/ D04/ D12/ F06/ F08/ F10/ H02/ H06/ H10/ H14/ K06/ K08/ K10/ M04/ M12/ P08	Yes	-	N/A	N/A	Analysis	NRFE-14-1	2.1.03.06.i-U4-EQRR-PCD002
Control Rod Drive Mechanisms (CRDMs) (69 Locations)	RXS-MV-11B06/ 11B08/ 11B10/ 11C05/ 11C07/ 11C09/ 11C11/ 11D04/ 11D06/ 11D08/ 11D10/ 11D12/ 11E03/ 11E05/ 11E07/ 11E09/ 11E11/ 11E13/ 11F02/ 11F04/ 11F06/ 11F08/ 11F10/ 11F12/ 11F14/ 11G03/ 11G05/ 11G07/ 11G09/ 11G11/ 11G13/ 11H02/ 11H04/ 11H06/ 11H08/ 11H10/ 11H12/ 11H14/ 11J03/ 11J05/ 11J07/ 11J09/ 11J11/ 11J13/ 11K02/ 11K04/ 11K06/ 11K08/ 11K10/ 11K12/ 11K14/ 11L03/ 11L05/ 11L07/ 11L09/ 11L11/ 11L13/ 11M04/ 11M06/ 11M08/ 11M10/ 11M12/ 11N05/ 11N07/ 11N09/ 11N11/ 11P06/ 11P08/ 11P10	Yes	No/ No	N/A	N/A	Analysis	SV4-MV11-S3R-002	2.1.03.06.i-U4-EQRR-PCD001
Incore Instrument QuickLoc Assemblies (8 Locations)	RXS-MY-Y11 through Y18	Yes	-	N/A	N/A	Analysis	SV4-MV01-S3R-002	2.1.03.06.i-U4-EQRR-PCD002
Source Range Detectors (4)	RXS-JE-NE001A/ NE001B/ NE001C/ NE001D	Yes	Yes/ Yes	1	E *	Type Testing & Analysis	SV4-JE92-VBR-001 / SV4-JE92-VBR-002	2.1.03.06.i-U4-EQRR-PCD003
Intermediate Range Detectors (4)	RXS-JE-NE002A/ NE002B/ NE002C/ NE002D	Yes	Yes/ Yes	1	E * S	Type Testing & Analysis	SV4-JE92-VBR-001 / SV4-JE92-VBR-002	2.1.03.06.i-U4-EQRR-PCD003

Equipment Name <sup>+</sup>	Tag No. <sup>+</sup>	Seismic Cat. I <sup>+</sup>	Class 1E/Qual. For Harsh Envir. <sup>+ 3</sup>	Envir. Zone <sup>1</sup>	Envir Qual Program <sup>2</sup>	Type of Qual.	EQ Reports	EQRR
Power Range Detectors – Lower (4)	RXS-JE-NE003A/ NE003B/ NE003C/ NE003D	Yes	Yes/ Yes	1	E * S	Type Testing & Analysis	SV4-JE92-VBR-001 / SV4-JE92-VBR-002	2.1.03.06.i-U4-EQRR-PCD003
Power Range Detectors – Upper (4)	RXS-JE-NE004A/ NE004B/ NE004C/ NE004D	Yes	Yes/ Yes	1	E * S	Type Testing & Analysis	SV4-JE92-VBR-001 / SV4-JE92-VBR-002	2.1.03.06.i-U4-EQRR-PCD003

Notes:

<sup>+</sup> Excerpt from COL Appendix C Table 2.1.3-1

1. See Table 3D.5-1 of UFSAR
2. E = Electrical Equipment Program (limit switch and the motor operator, squib operator, solenoid operator)  
S = Qualified for submergence or operation with spray  
\* = Harsh Environment
3. Dash (-) indicates not applicable